

**KARSHYA IN CHILDREN: AN AYURVEDIC PERSPECTIVE WITH SPECIAL REFERENCE TO PROTEIN ENERGY MALNUTRITION**

**Dr. Punam Tupkar<sup>1\*</sup>, Dr. Vijaykumar Suryawanshi<sup>2</sup>, Dr. Sachin Gwalani<sup>3</sup>,  
Dr. Prachi S. Awatade<sup>4</sup>, Dr. Dnyaneshwar R. Khawal<sup>5</sup>**

<sup>1</sup>PG Scholar, Dept. of Kaumarbhritya, SMBT Ayurved College & Hospital, Dhamangaon, Nashik, Maharashtra India.

<sup>2</sup>HOD & Professor, Dept. of Kaumarbhritya, SMBT Ayurved College & Hospital, Dhamangaon, Nashik, Maharashtra India.

<sup>3</sup>Associate Professor, Dept. of Kaumarbhritya, SMBT Ayurved College & Hospital, Dhamangaon, Nashik, Maharashtra India.

<sup>4</sup>PG Scholar, Dept. of Kaumarbhritya, SMBT Ayurved College & Hospital, Dhamangaon, Nashik, Maharashtra India.

<sup>5</sup>BAMS MD, Maharashtra University of Health Sciences, Nashik, Maharashtra India.

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**\*Corresponding Author****Dr. Punam Tupkar**

PG Scholar, Dept. of  
Kaumarbhritya, SMBT Ayurved  
College & Hospital, Dhamangaon,  
Nashik, Maharashtra India.



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**ABSTRACT**

Karshya is an Ayurvedic clinical condition characterized by undernourishment, depletion of body tissues, reduced strength, and predominance of Vata Dosha. In children, this state bears close resemblance to Protein Energy Malnutrition (PEM), which remains an important cause of morbidity, impaired growth, and mortality in many developing countries. Ayurveda explains childhood emaciation through concepts such as Agnimandya (impaired digestive-metabolic function), Apatarpana (insufficient nourishment), and Dhatu Kshaya (tissue depletion). Modern medicine recognizes PEM as a spectrum ranging from underweight to severe acute malnutrition, marasmus, and kwashiorkor. This review critically correlates Ayurvedic descriptions of Karshya with modern biomedical understanding of PEM. Classical etiological factors, pathogenesis, signs and symptoms, diagnostic principles, preventive measures, and management

strategies are discussed. Special emphasis is placed on integrative care combining nutritional rehabilitation, correction of digestive dysfunction, Rasayana therapy, and public health interventions. Such a holistic approach may improve growth, immunity, and long-term child health outcomes.

**KEYWORDS:** Karshya, Protein Energy Malnutrition, Balroga, Agnimandya, Dhatu Kshaya, Brimhana, Pediatrics.

## 1. INTRODUCTION

Childhood nutrition is the foundation of physical growth, neurocognitive development, immunity, and future productivity. Undernutrition remains a major global health challenge, particularly in low- and middle-income countries. According to international estimates, undernutrition contributes significantly to deaths among children below five years of age and predisposes survivors to stunting, infections, and poor scholastic performance.<sup>[1,2]</sup> Protein Energy Malnutrition (PEM) refers to a deficiency of calories, proteins, or both. It manifests as wasting, underweight, edema, developmental delay, and immune dysfunction.<sup>[3]</sup> In India, despite improvements in health services, PEM continues to be prevalent due to poverty, feeding errors, recurrent infections, and maternal malnutrition.<sup>[4]</sup> Ayurveda describes nutritional depletion under the broad concept of Karshya, denoting excessive leanness and loss of bodily tissues. Since childhood is a phase of rapid tissue growth and metabolic demand, children are highly vulnerable to Karshya when diet, digestion, or tissue nourishment is disturbed.<sup>[5]</sup> Unlike the calorie-centric modern model, Ayurveda gives equal importance to digestive fire (Agni), proper tissue transformation (Dhatu Poshana), and vitality (Ojas). Therefore, Ayurvedic concepts may provide a valuable complementary framework in pediatric malnutrition.

## 2. Concept of Karshya in Ayurveda

### 2.1 Definition

Karshya is described as an excessively lean body state associated with loss of muscle mass, weakness, poor endurance, and reduced nourishment. Charaka includes extremely lean individuals among the Ashta Nindita Purusha (eight undesirable body constitutions), indicating increased susceptibility to disease.<sup>[5]</sup>

### 2.2 Karshya in Children

In children, Karshya assumes greater importance because

- Growth rate is high
- Nutritional reserves are limited
- Digestive capacity is immature
- Immunity is developing
- Dependence on caregivers is complete

Hence even minor feeding inadequacies or recurrent illness can rapidly precipitate nutritional decline.

### 3. Correlation with Protein Energy Malnutrition

PEM includes a range of disorders caused by inadequate intake or utilization of nutrients. It is commonly divided into

- **Underweight:** Low weight for age
- **Wasting:** Low weight for height
- **Stunting:** Low height for age
- **Marasmus:** Severe calorie deficiency with marked wasting
- **Kwashiorkor:** Protein deficiency with edema
- **Severe Acute Malnutrition (SAM):** Severe wasting or nutritional edema.<sup>[1,3]</sup>

The clinical features of Karshya closely resemble marasmus and chronic undernutrition, while some features of Dhatu Kshaya and Oja depletion overlap with complicated PEM.

### 4. Nidana (Etiological Factors)

#### 4.1 Ayurvedic Causes

Ayurvedic classics attribute Karshya to inadequate or faulty nourishment and Vata aggravation. Common causes include:

- Alpashana (insufficient food intake)
- Apatarpana (undernutrition)
- Ruksha and Laghu Ahara (dry, light diet)
- Irregular feeding habits
- Excessive exertion
- Chronic illness
- Psychological stress
- Vata-provoking lifestyle factors.<sup>[5,6]</sup>

#### 4.2 Pediatric-Specific Causes

Modern pediatric factors include

- Improper breastfeeding technique
- Failure of exclusive breastfeeding
- Delayed complementary feeding
- Excess dilution of milk feeds
- Recurrent diarrhea
- Respiratory infections
- Worm infestation
- Poverty and food insecurity
- Maternal anemia or undernutrition<sup>[2,4]</sup>

## 5. Samprapti (Pathogenesis)

### 5.1 Ayurvedic Pathogenesis

The disease process may be summarized as follows

1. Nidana Sevana (causative factors)
2. Agnimandya (weak digestive/metabolic fire)
3. Incomplete formation of Rasa Dhatu
4. Impaired nourishment of successive Dhatus
5. Dhatu Kshaya (loss of tissues)
6. Vata aggravation
7. Manifestation of Karshya symptoms

### 5.2 Modern Pathophysiology of PEM

- Inadequate calorie intake causes fat depletion
- Protein deficiency causes muscle wasting
- Hypoalbuminemia may produce edema
- Micronutrient deficiencies impair immunity
- Gut mucosal atrophy worsens absorption
- Oxidative stress and inflammation increase catabolism<sup>[3,7]</sup>

### 5.3 Comparative Understanding

Ayurvedic Concept	Modern Correlation
Agnimandya	Maldigestion / poor absorption
Dhatu Kshaya	Tissue wasting
Vata Vriddhi	Catabolic state
Ojakshaya	Reduced immunity
Apatarpana	Calorie-protein deficiency

## 6. Clinical Features

### 6.1 Features of Karshya

- Thin body frame
- Prominent bones
- Dry skin
- Poor strength
- Reduced appetite
- Delayed growth
- Fatigue

### 6.2 Features of PEM

- Wasting of muscles
- Failure to gain weight
- Edema (kwashiorkor)
- Hair changes
- Dermatitis
- Irritability or apathy
- Recurrent infections
- Developmental delay<sup>[3,8]</sup>

## 7. DIAGNOSIS

### 7.1 Ayurvedic Assessment

- Dashavidha Pariksha
- Bala assessment
- Agni status
- Dhatu Sara
- Prakriti and Vikriti analysis
- Stool, appetite, sleep, activity pattern

### 7.2 Modern Assessment

- Weight-for-age
- Height-for-age
- Weight-for-height Z scores
- Mid Upper Arm Circumference (MUAC)
- CBC, hemoglobin

- Serum albumin when required
- Stool examination for parasites
- Growth chart plotting.<sup>[1,8]</sup>

## **8. Management**

### **8.1 Principles of Ayurvedic Management**

The primary aim is to restore digestion first, followed by nourishment.

- Agni Deepana
- Pachana when Ama present
- Brimhana (anabolic nourishment)
- Vata Shamana
- Rasayana therapy
- Gradual strengthening

### **8.2 Ahara Chikitsa**

Recommended foods:

- Breast milk (where age appropriate)
- Cow's milk if tolerated
- Ghrita in suitable quantity
- Rice preparations
- Mudga Yusha
- Moong khichadi
- Fresh fruits like banana
- Dates and raisins
- Meat soup in indicated cases

These foods provide calories, proteins, micronutrients, and digestibility.

### **8.3 Useful Ayurvedic Drugs**

- Ashwagandha
- Shatavari
- Vidarikanda
- Drakshavaleha
- Chyawanprasha (age-appropriate)

- Ghrita preparations

#### **8.4 Panchakarma Consideration**

Strong purification therapies are generally avoided in debilitated children. Gentle supportive procedures like Matra Basti may be considered selectively in chronic Vata-dominant states under expert supervision.

#### **8.5 Modern Management**

WHO-based management includes

- Treatment of hypoglycemia/hypothermia
- Careful feeding protocols (F-75/F-100 or RUTF as indicated)
- Antibiotics when infection suspected
- Deworming
- Micronutrient correction
- Catch-up nutrition
- Caregiver counseling<sup>[1]</sup>

### **9. Prevention**

#### **9.1 Ayurvedic Measures**

- Proper Garbhini Paricharya during pregnancy
- Exclusive breastfeeding
- Timely Annaprashana and complementary feeding
- Child-friendly Dinacharya
- Seasonal adaptation
- Hygienic food preparation

#### **9.2 Public Health Measures**

- Immunization
- Growth monitoring
- Vitamin supplementation programs
- Sanitation and safe water
- Nutrition education
- Poverty reduction strategies.<sup>[2]</sup>

### **10. Complications**

Untreated childhood malnutrition may lead to

- Stunting
- Learning difficulty
- Delayed puberty
- Frequent infections
- Poor wound healing
- Reduced adult productivity
- Increased mortality.<sup>[2,3]</sup>

## 11. DISCUSSION

Karshya is not merely a cosmetic or weight-related issue; it represents systemic nutritional and metabolic depletion. Ayurveda emphasizes that nourishment cannot occur properly when digestion is impaired. This principle aligns with modern evidence showing gut dysfunction, malabsorption, and repeated infections in malnourished children. The sequential concept of Dhatu Poshana resembles modern tissue metabolism, where inadequate substrate supply first affects fat stores, then muscle, immunity, and organ function. Similarly, Ojas may be interpreted functionally as resilience and immune competence. Modern management excels in emergency stabilization and evidence-based nutritional rehabilitation. Ayurveda contributes long-term strategies involving appetite improvement, digestibility, tissue strengthening, recurrence prevention, and individualized care. Therefore, an integrated approach is rational and clinically useful.

## 12. CONCLUSION

Karshya in children has strong conceptual and clinical similarity with Protein Energy Malnutrition. Ayurvedic understanding broadens the disease model by incorporating digestive strength, tissue nourishment, and vitality. Early recognition and management are essential to prevent irreversible growth and developmental consequences. Integrative care combining scientific nutritional rehabilitation with Ayurvedic Brimhana, Agni correction, and preventive counseling may offer superior outcomes in pediatric practice.

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